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ABSTRACT

A study investigated the effectiveness of a story structure questioning strategy upon the reading comprehension of sixth grade students. An alternate questioning strategy was used as a comparison treatment, and involved more traditional literal, interpretative, and problem solving questions. On the basis of reading level scores, 100 students were identified as good, average, or poor readers and randomly assigned to one of the two treatment groups. The instructional materials were identical for both groups; however, instructional methodology differed as to type of questions asked and the manner in which the students were told to think about the reading of stories. Half of the subjects from each treatment group were administered immediate free recall and cued recall tests and the remaining half were administered delayed recall and cued recall measures. The results revealed that recall of story information was enhanced by the use of the story structure questioning strategy. (FL)

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The Effects of Story Structure Questioning Upon Reading Comprehension

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Recent research has shown the importance of the structure of narrative discourse for comprehension and recall of text. These studies suggest that good readers recognize and employ this structure, while poor readers appear to lack this skill. Guthrie (1973) found that "disabled readers are deficient in the amount of comprehension but not qualitatively different from normal in syntactic processing during silent reading" (p. 298). Guthrie suggested that additional research needs to be conducted so that we may better understand and aid in the adequate development of reading comprehension skills. In a more recent article, Guthrie (1977) stated, "Comprehension of a story is not comprehension of haphazard facts or a main idea, but it is comprehension of the structure. . . (Therefore, we need to) use questions that will help reconstruct the story" (p. 577).

There is strong evidence that school-age children have developed and use, to greater and lesser degrees, a schemata for stories (Applebee, 1978). The practical problem for educators lies in what to do with the child who either does not have, or does not appear to use, a story schema. The present study was designed to investigate the effectiveness of a Story Structure Questioning Strategy upon the reading comprehension of sixth grade students. The Story Structure Questions were designed to highlight and focus upon the structure of the story. The Alternate Questioning Strategy which served as the comparison treatment in this study consisted of the more traditional literal, interpretive and problem solving questions. It was hypothesized that students who were consistently exposed to Story Structure

Questions, which reflect the major elements of a story, would become aware of story schema and form a personal set of story schemata for comprehending and recalling stories. Given that good readers have an internal scaffolding or story structure which they apparently use successfully, it was hypothesized that there would be little or no difference in the performance of good readers using the Story Structure or Alternate Questioning Strategy. In addition, it was hypothesized that the poor readers using the Story Structure Questioning Stretegy would benefit more than average and good readers from questions reflecting story structure since these questions would provide them with a stronger ideational scaffolding.

Organizational Strategies and Reading Comprehension

The process of obtaining meaning from textual material apparently involves complex organizational strategies on the reader's part (Levin, 1973). Good readers, with their ability to comprehend discourse that has varying degrees of structure, appear to have a well-developed, highly accessible, set of organizing strategies. However, poor readers, even when given clearly structured material, still appear to lack the necessary strategies through which their cognitive schema is able to interact meaningfully with the material.

Cromer (1970) found that some readers were able to improve their comprehension when sentences were grouped into meaningful phrase units. Other researchers (Glynn & DiVesta, 1977; Mayer, 1978) have determined that when material is presented in a very organized fashion, or when the means for organizing the material

is provided, that some readers' comprehension can be increased, whereas good readers' comprehension is barely altered. This is consistent with the belief that good readers have a cognitive structure which allows them to organize what they read, whether or not the material itself is well-organized. These findings also suggest that poor readers are often poor comprehenders because of their inability to structure that which they read.

Guthrie (1973) found that when fifth-grade good and poor readers read material that was six to 12 months below their tested ability of vocabulary, the poor readers were not able to remember as much as their good reader peers, nor as much as second-grade children reading at the level of the disabled older readers. Smiley, Oakley, Worthen, Campione, and Brown (1977), Kintsch and Kozminsky (1977), and Coomber (1975) found similar results with students from fourth-grade to college. Guthrie (1973) recommended that "if specific comprehension deficiencies are present it may be that specific remediation in comprehension is necessary" (p. 298). In order to improve student understanding of discourse, Guthrie (1977) later suggested asking the students questions which would enable them to integrate the details and the structure of a story. This ties in with two areas of related research, that of schema theory and of story structure analysis. Both of these topics need to be examined for their theoretical and practical implications for creating an instructional strategy for helping students to comprehend and to recall stories.

Schema Theory

Coomber (1975) reviewed a study by Perry in which students at Harvard read a chapter in a history text, answered an objective test, and wrote summaries of the main ideas presented in the chapter. The students did an excellent job of answering the objective questions, yet only about one percent were able to write a satisfactory summary. To substantiate these findings, Coomber (1975) completed a study with college freshmen. He gave them seven non-fiction selections, each containing from five to 13 paragraphs. After each passage, and being allowed to refer back to the passages, students answered multiple choice questions asking for the main idea of specific paragraphs. Each paragraph questioned had a topic sentence. Coomber's results were similar to those of Perry, thus he concluded:

> Without a clear knowledge of thesis and main ideas in a reading selection, the reader is likely to come away from a selection with only a collection of details unrelated to any larger structure.... Furthermore, without an awareness of the structure that unites the details, the reader will probably have difficulty remembering details. (p. 265)

The way in which one records and recalls information depends on one's schema for a particular topic or type of material. A schema, according to Tuinnam (1980), "is an abstraction of reality" (p. 416). Schemata are used to help chunk incoming information when encoding, to help one to predict what should happen next and, in recalling information, to help one remember information in an orderly fashion so that one knows if something important has been omitted.

Kant (1787) referred to schemata as mental representations which provide an image of a concept and a theory while aiding our understanding of that concept. In order to exemplify this notion, he asserted:

> No image could ever be adequate to the concept of a triangle in general. It would never attain that universality of the concept which renders it valid of all triangles.... The schema of a triangle...is a rule of syntheses of the imagination. (p. 182)

Kant noted that although schemata can help our understanding of objects and concepts, they can also restrict it. We tend to see what we expect to see, not what in reality is actually present. This hindering side of schemata is important to recognize, and yet it was not really explored again until the research of Bartlett in 1932.

Bartlett (1932) believed that the mind acts upon all incoming data in such a way as to gain understanding. He called this procedure "effort after meaning" and defined it as "the fundamental process of connecting a given pattern with some setting or schema" (p. 201). Supporting Kant's contention, Bartlett noted that as soon as the pattern is assigned a name, or attached to a schema, the name "immediately shapes both what is seen and what is recalled" (p. 20).

Bartlett concluded from his research that people develop schemata for reading stories, that is, a knowledge of particular classes of stories and literary styles. Stories are recalled through "imaginative reconstructions" (p. 28) based on personal schemata for stories. When one can't recall a part of the story, one uses one's past knowledge of classes and styles of stories

to determine what might have occurred at that particular, unrecallable, point. This, suggested Bartlett, helps to account for why recalled stories, over time, tend to resemble the idealized schema more than the actual literary input. Readers generally recall what should have occurred in an ideal story, rather than the actual events.

Mandler and Johnson (1977), when reviewing Bartlett's work, commented that Bartlett's research with schemata, memory and narrative prose was important because it was the first in this area:

> However, the description of schemata in Bartlett's analysis necessarily remained very general because his theory did not account for the internal structure of stories; he used the term "schema" to include such notions as literary style, mood, and various classes of stories, which through them could be expected to affect retrieval, seem less basic than a characterization of the units from which a story is constructed. (p. 112)

Rumelhart (1975) revived Bartlett's ideas to create a schema for stories which examined the internal, rather than the external, structure of narrative discourse. Though no longer used, Rumelhart's (1975) work provided the spark for research which studied the structure of textual material and the influence of this structure and/or a person's schemata upon oral and written recall (Mandler & Johnson, 1977; Pichert & Anderson, 1977; Stein, 1978; Thorndyke, 1977; van Dijk & Kintsch, 1977).

Thorndyke and Hayes-Roth (1979) examined recent schema theory research for similarities and then developed a learning model based on memory schemata. They summarized four common properties of schemata, saying that schemata: (1) reflect a

prototypical abstraction of the concept they represent, (2) are induced from past experiences, (3) can guide the organization of incoming information into clusters of knowledge that are "instantiations" of the schema, and (4) their features can be inferred from "default values" when one of the constituent concepts is missing. They emphasized that how well one remembers is in part due to the stability and accessibility of the specific schema. The more a schema is used, the more stable and accessible it becomes.

Thorndyke and Hayes-Roth (1979) synthesized the development and empirical testing of the cost and benefits associated with the use of schemata in learning and convincingly suggested the importance of the concept of schema in aiding our understanding of the reading comprehension intake, storage, and recall processes. Rumelhart and Ortony (1977) concurred, asserting, "(t)he generation, modification and instantiation of schemata seem to us to characterize both informal learning and formal schooling" (p. 132).

Future research, suggested Tuinman (1980) and Grabe (1979), needs to examine how we can manipulate schemata so that they may be more easily acquired and enriched. Grabe (1979) also noted that younger and less able readers are not as capable of appreciating the structure of stories and text. The present research was an attempt to use the knowledge that is available about schema in order to create an instructional strategy for helping students to comprehend and recall stories.

Discourse Analysis

Anderson, Pichert, and Shirey (1979) have defined two types of schemata which the reader can use to organize and recall information. One is textual schemata, or the "knowledge of the discourse-level convention of text" (p. 2). The other, content schemata, embodies "the reader's existing knowledge of real and imaginary worlds" (p. 2). Textual schemata provide the general outline for material which we read. Readers seem to use their knowledge of a particular narrative form both to predict what will follow and to organize incoming information. Also, gaps in the body of information are noticed if a particular part of the schema is not filled.

Content schemata is the prior knowledge which one brings to the material which is read. One's beliefs about the topic apparently influence one's interpretation of the text. This in turn causes different pieces of information to be remembered, depending on which pieces are important to the reader's frame of reference. However, if an alternate frame of reference is induced, the bits of information recalled can change.

Story grammars form the base for textual schemata when one is studying narrative discourse. They "exist as an approximation of a reader's internalized grammar for a single protagonist narrative" (Tierney & Mosenthal, 1980, p. 31). Rumelhart (1975), Mandler and Johnson (1977), Stein and Glenn (1977a) and Thorndyke (1977) are the major researchers in this area who have developed unique, yet similar story grammars. All of the grammars contain a setting, a goal for the protagonist, a series of episodes to

reach the goal, an outcome and a resolution. The episodes are usually further divided into initiating event, action, response and outcome. The purpose of Shurcliff's (1978) research was to combine and use the best parts of each of the four models in order to create a more ideal story structure. His resulting model is shown in Figure 1.

Insert Figure 1 about here

Many existing story grammar models have been tested and have yielded similar results (Kintsch, 1977a, 1977b; Poulsen, Kintsch, Kintsch, & Premark, 1979). Thorndyke (1977) concluded:

> (I)nsofar as people are able to identify a particular story as an example of a general, previously learned organizational framework, they use that framework to comprehend and encode the information in a particular text. (p. 79)
> (Therefore), it is clear from the data presented here that any adequate accounting of discourse comprehension consider the high-level structural characteristics of the text and the reader's internal representations of that information. (p. 105)

There is general agreement that the reader is actually predicting what will happen in the story from his/her story schema and filling in, or modifying, the slots with the structure and the details of the story being read; it is not a passive process.

In order to test the assumption that people expect certain types of information to occur in a story, Stein and Glenn (1977b) deleted one of six basic categories from stories read to first and fifth graders. The control group heard the well-formed story, all other subjects heard the setting, and then the rest of the story minus one of the categories. Summarizing the results, Stein and Glenn (1977b) reported that first graders "make a

substantial number of inferences when missing information occurs in a story" (p. 11) and they appear to be using the same sort of schemata to recall stories as are the older children. It seems that sufficient evidence has been provided to support the hypotheses that many six-year-olds have a strong schema for stories and that by age 11, children are much more able to actively manipulate their schemata to aid comprehension and recall. Additionally, a series of studies designed by Applebee (1978) with children from two to 17-years-old supported the hypothesis that young children have a sense of story. As children develop, this story schema becomes more beneficial during reading and recalling stories. Thus, the theoretical notion of an internalized story grammar appears well founded. From the studies generated about story structure, it appears that story grammars provide an efficient and manageable tool for researchers. However, the story grammars proposed so far are too complex to use as instructional tools for elementary children.

Bower (1976) developed a simple pictorial version of story structure which follows three proposed rules:

> The first rule simply defines a story as consisting of a setting, theme, plot, and a resolution, which usually occur in that sequence. The second rule is that the setting consists of characters and usually the location and time of a story. The third rule is that the theme of a story consists of the main goal of the main character. (Guthrie, 1977, p. 575)

In Bower's pictorial representation (see Figure 2), the influence of the various story grammars is apparent, yet the ease of seeing the major parts of a story and their relationships is increased.

Insert Figure 2 about here

In order to use Bower's version in the classroom, Cunningham and Foster (1978) made modifications and developed the model shown in Figure 3. This diagram was used by sixth-grade students to outline the story structure of short stories. The outline provided a visual representation of the organization inherent in most short stories. By using this, it was expected that students would develop an internal schema which would increase their

Insert Figure 3 about here

ability to use the structure of the whole story to enhance their comprehension. No empirical evidence was reported however, on the effectiveness of this strategy.

Questioning as an Advance Organizer

Melnik (1968) supported the notion that in order to comprehend, a reader's content and textual schemata must relate to the author's pattern of thought. She stated:

> To be selective, the reader must raise significant and appropriate questions relevant to the material as a basis for establishing a purpose for reading. His questions determine what he reads, how he reads, and what he gets out of his reading. In short, questions underlie and guide the reader's quest for understanding as he engages in a dialogue with the author. (p. 509)

In this manner, the questions which a person chooses to ask before reading any material act as an advance organizer. This is consistent with Ausubel's (1968) statement that the function of an advance organizer is "to provide ideational scaffolding for the

stable incorporation and retention of the more detailed and differentiated material that follows" (p. 148). Therefore, advance organizers are general statements or questions which will help the reader to comprehend and interlock the details which are read. Smith (1978) also noted the importance of questions for prediction and comprehension in a manner quite similar to Melnik's (1968).

In a related area of research, Rickards (1979) discussed adjunct postquestioning. This "consists of interspersing questions in a passage of text contiguous to the material to which they relate" (p. 181). One of the hypotheses postulated is "that the questions act in a forward manner optimizing mathemagenic behaviors on passages" (Frase, 1967, p. 270). These questions can be of two distinct sets (Richards, 1979). One set consists of specific questions which cause the reader to attend to the particular information being requested. The opposite is true for the second set which is more general and causes increased attention to all information.

Research by Rickards (1979) suggested the importance of what he referred to as "Meaningful Learning" postquestions. These are questions which require the reader "to organize the specific details around the general idea contained in the topic sentence of each related paragraph" (p. 191). "Meaningful Learning" postquestions were contrasted with "Rote Learning of Ideas" postquestions. The postquestions of facts demanded literal recall of details. Idea postquestions asked for the topic sentence of each paragraph. Results indicated that the "Meaninful Learning"

postquestions aided the reader in recalling both more related ideas and facts than those groups asked only factual or thematic questions.

Research by Restle (1975) also suggested that the type of questions students expect to have to answer determines in part the cognitive structures formed by the students. He gave students a series of practice paragraphs about organizations (such as the Army or business) and asked students questions about one part of the organizational hierarchy each time. After only four practice sessions, subjects were reading paragraphs only to obtain the answers to questions that they thought would be asked. The author acknowledged the simplistic nature of the research design, yet asserted that instructors need to examine the types of questions which they ask, to see if they are helping to develop appropriate cognitive structures. These findings are supportive of the results of research by Crump, 1970; Guszak, 1967; Melnik, 1968; and Rogers, 1972 which stated that the type of questions asked by classroom teachers stimulated the same type of thinking.

The research and theories presented here form the theoretical foundations for the research presented in this study. Following the reading of a folktale, the Story Structure Questioning Strategy group was asked six questions which focused upon the story structure of the folktale while the Alternate Questioning group received a total of six literal, interpretative and problem solving questions. The primary hypothesis under investigation was whether Story Structure Questions would provide

ideational scaffolding which would enhance reading comprehension and recall.

Method

Subjects. A total of 100 sixth-grade students attending two elementary schools in a public school system in a suburban county near Washington, D.C. participated in the study. Subjects met the following criteria for inclusion in the study: 1) a reading grade level score between 3.0 and 9.0, as tested individually by the school's reading specialist, and 2) teacher agreement on the accuracy of the reading level test score. On the basis of reading level scores subjects were grouped as follows: good readers (reading levels from 7.5 to 9.0), average readers (reading levels from 5.0 to 7.0), and poor readers (reading levels from 3.0 to 4.5).

Materials. Folktales were chosen as the narrative form of discourse because of their well-structured, highly organized nature. All the elements in well structured folktales are dependent on each other and the initial situation (Propp, 1968). Also, folktales have been used with consistent results by other researchers in the study of narrative discourse (Mandler & Johnson, 1977; Rumelhart, 1975; Stein & Glenn, 1978; Thorndyke, 1977).

The stories chosen for the present study had a setting, a main theme, at least two episodes, and a resolution. The folktales used for the training sessions originated from different African tribes and were titled: Tug of War, Throw Mountains, Why the Sun and the Moon Live in the Sky, and Kassa, the Strong

One. The title of the Japanese folktale used in testing was The Wolf's Reward.

In order to minimize differences due to reading material which was too difficult or too easy, the folktales were rewritten by the researcher so that they approximated the independent reading level of the good, average and poor readers. The Fry Readability Formula (1977) was used to determine the readability levels of the folktales. The stories used with the good readers were between 6.5 and 7.5 grade level range, the stories used with the average readers were between 4.5 and 5.5, and the stories used with the poor readers were between 2.5 and 3.5

The free recall assessment instrument was based on Shurcliff's (1978) story-structure model, which was used to parse the testing story into its basic elements. To break the elements down into scorable units, a variation of Kintsch's (1974) idea unit was developed by the researcher. The instrument was reviewed for content validity by a panel of judges and then used by the researcher to parse the basic elements into idea units. A panel of six judges, after training, was asked to make decisions as to the accuracy of the parsing; 100 percent agreement was obtained. The testing story was divided into 79 idea units; good, average and poor reader variations were equalized for idea units. The list of idea units was used to score the free recall responses.

The cued recall instrument consisted of 12 questions: six story structure, three literal and three interpretive. The questions were bound in booklet form with one question per page.

Subjects wrote their answers in the booklet, and were not allowed to return to a previously answered question. The questions were circularly permutated so that the order of the questions would not affect the final results. However, the story structure questions, because of their inter-dependence, were treated as a single unit.

All questions used in the course of the study for instruction and assessment were developed by the researcher, validated by a panel of judges and field-tested on below average sixth-grade readers not involved in the research. This procedure was undertaken to assure that all subjects during testing would be able to understand and respond to all questions. This was a preliminary concern because of specific terminology used in the Story Structure Questions (main character, main goal, etc.). It was determined in this pilot that sixth-grade below average readers had no difficulty answering the Story Structure Questions.

Procedures. Good, average, and poor readers were randomly assigned to one of two treatment groups. One treatment group received instruction using the Story Structure Questioning Strategy, and the other group received instruction using the Alternate Questioning Strategy. In order to be included in the final data, students had to attend three instructional sessions and the testing session(s).

Instruction was conducted with groups of three to seven subjects. Individual testing sessions followed the last teaching session and were conducted again one week later. All sessions, teaching and testing, were scripted. The first teaching session

for both treatment conditions was 30 minutes long. During this time rapport was established, a general overview of the teaching sessions was given, the title and a one sentence introduction of the folktale was given, the students read the story silently and either the story structure questions or the alternate questions were explained and then answered by the students. The remaining three teaching sessions were 15 to 20 minutes long.

The instructional materials used for instruction remained identical across both the Story Structure Questioning Strategy and the Alternate Questioning Strategy treatment conditions. However, instructional methodology differed as to: (1) the type of questions asked, and (2) the subsequent thinking about and expectancies developed for future reading of short stories.

Story Structure Questioning Strategy. The instruction under this treatment condition was based on the use of questions which focused on the structural elements of a story.

During the initial instructional session, discussion focused upon the four story parts (setting, theme, plot and resolution), and the fact that these four story parts are inter-related. The students were then shown a large chart (see Figure 4) divided

Insert Figure 4 about here

into quarters, headed by the title of the folktale selection, and subheaded at the top of each column by the words setting, theme, plot, and resolution. Below each subheading were the appropriate story structure questions (What was the main goal of the main character?, Did the main character reach his/her final goal?,

etc.). Students then either recalled, or reread to locate, answers to each of the questions; the instructor wrote the answers on the chart. At the end of this first session, the four main parts of a story were again reviewed and students were reminded: (1) that short stories have these four parts, and (2) it is the linking together of these four parts that creates a story.

For the remaining three instructional sessions, subjects silently read a folktale and then individually filled in an outline (based upon the model developed by Cunningham and Foster (1978)) and answered six story questions. At each session, the instructor played a smaller role; however, answers were always reviewed by the group at the end of each session.

Alternate Questioning Strategy. The instruction under this treatment condition was based upon traditional questions used during classroom reading instruction (Guszak, 1967).

During the first instructional session discussion focused upon the three types of questions: (1) literal, where the answer is stated on the text, (2) inferential, where there are clues given in the text but no direct answer is stated, and (3) problem-solving, where the answer requires something more than is given in the text. After giving the subjects a chance to offer their own definitions for the three classifications, each type was defined and explained. The students were then shown a large chart (see Figure 5) divided into thirds, headed by the

Insert Figure 5 about here

title of the folktale selection, and subheaded along the side by the words literal, interpretive, and problem-solving. Below each subheading were the appropriate questions for that particular folktale. Students then either recalled, or reread to locate, the answers to each of the questions; the instructor wrote the answers on the chart. At the end of this first session, students were told that these different types of questions could be asked about all short stories.

For the three remaining teaching sessions, subjects silently read a folktale and then individually filled in an outline resembling the literal, inferential and problem-solving chart and answered three literal, two interpretive and one problem-solving question. At each session, the instructor played a smaller role, however, answers were always reviewed by the group at the end of each session.

Testing sessions. One-half of the subjects from each treatment group were randomly selected for the purpose of assisting immediate free and cued recall and the remaining one-half were tested for delayed free and cued recall.

At the initial testing session subjects were asked to silently read a folktale, after having the purpose for reading the folktale stated ("Read it carefully because I'm going to ask you to tell me about it."). After reading the folktale, subjects for the second testing session (delayed recall) were excused. A two or three minute counting exercise was used for the remaining subjects to minimize the effects of short term memory. Then, students were asked to tell the examiner the whole story in their

own words. A single prompt was used, "You've mentioned _____ to me, can you tell me more about that?" Subjects were allowed 30 seconds of silence after prompting before the retelling was considered finished. Following the retelling, students were asked to write the answers to the cued recall instrument which consisted of six story structure questions and six traditional questions (literal and interpretative). Testing for delayed recall took place one week later with the examiner using the same script that was used for those who were tested during the first session.

Scoring. As was noted in the free recall and cued recall treatment sections, a scoring guide for each was developed. Each subject's protocol was scored by three persons. Two of the three raters had to concur on the score for each question for the score to be accepted - when necessary, a fourth rater was used. Rater A and rater B correlated at .868, B and C at .900, and A and C at .913.

In order to score the free recall, the research transcribed the verbal recall from tapes. The six judges who developed the list of idea units for the folktale used in the testing were asked to score the free recall protocols. Subjects received one point for every correctly recalled idea unit. No points were subtracted for incorrect ideas and not one of the subjects recalled events in the story out of the correct sequence. Each subject's transcription was scored by three raters, independent of each other. The investigator then determined a final free recall score for each subject. In cases where two of the three scores

did not concur, the middle score was accepted; thus if the scores were 18, 21, and 27, the subject received a score of 21. Rater A and B correlated at .915, raters B and C at .891, and A and C were correlated at .904.

Results

Data were analyzed to test for mean differences on the free recall and the cued recall responses between the Story Structure Questioning group and the Alternate Questioning group. Significance differences for treatment groups, testing sessions and comprehension performance was tested by an analysis of covariance. Reading level, grade level equivalent on the reading comprehension sub-test of the Iowa Tests of Basic Skills and the score on the Cognitive Abilities Test were used as covariates. Analysis of variance was to determine if there were significant sex differences.

The first analysis of the data examined the scores of the male and female subjects. Because there were no statistically significant differences, the two sexes were collapsed across all categories for all further analyses. Another preliminary analysis of the data was conducted to find the correlation among the three covariates: the school's reading level placement, the fifth-grade reading comprehension section of the Iowa Tests of Basic Skills, and the Cognitive Abilities Test. The correlations among these three covariates and the dependent variables (free and cued recall) are reported in Table 1.

Insert Table 1 about here

Multivariate analysis of variance and analysis of covariance were employed to determine statistical significance at the .05 level of the difference in treatments immediately and one week later. These procedures were also used to determine statistical significance of the difference due to reading level and treatment.

The first hypothesis was that the Story Structure Questioning group would have more correct free and cued recall responses than the group which received the Alternate Questions, during testing sessions one and two (subjects were tested only once, at session one or at session two). Table 2 displays the means of all four groups. While not statistically significant, the means were in the expected direction.

Insert Table 2 about here

It was decided to use the school's placement scores and the Iowa Tests of Basic Skills reading comprehension score as single covariates because they were so highly correlated. When this was done, cued recall performance was statistically significant at the $p < .05$ level in favor of the Story Structure Questioning Strategy group on both the story structure and the alternate questions. These results are displayed in Table 3.

Insert Table 3 about here

The second hypothesis was that the Story Structure Questioning Strategy group would forget less than the Alternate Questioning Strategy group from testing session one to testing session two for both free and cued recall. The interaction between treatment and testing session was not statistically

significant for either free or cued recall. For both of the treatment groups, reading performance was better during testing session one than during testing session two. The results are noted in Table 4.

Insert Table 4 about here

The third and fourth hypotheses posited that all levels of readers in the Story Structure Questioning Strategy group would perform equally well. Since they were all reading material at their independent level, it was anticipated that the Story Structure Questioning Strategy would enhance storage and recall of information. Secondly, it was expected that for the Alternate Questioning Strategy group there would be a positive relationship between the level of reader and their comprehension performance. As can be seen in Table 5, for both groups the correlations between the Iowa Tests of Basic Skills reading score and free and cued recall scores were statistically significant, indicating that there was a relationship between level of reader and performance.

Insert Table 5 about here

In order to more closely examine the interaction of reading level with treatment, subjects were classified either good, average or poor readers by their Iowa Tests of Basic Skills score placement in the upper, middle or lower third of the treatment group. A multivariate analysis of variance was performed using the three reading levels as a covariate. The F-ratio (1,67) of treatment for free recall was 2.391. This was not statistically

significant at the $p < .05$ level, although it approached significance. The F-ratio (1,67) of treatment for cued recall was 4.632 and was statistically significant at the $p < .05$ level. This strongly suggests that the level of reader correlated with the cued recall performance.

In order to more closely approximate a typical school exercise, those students who were tested during the first testing session were also tested on the same material in the second session, without being allowed to review the material. Subjects were again asked to retell the story and to answer the same set of questions. It was hypothesized that the subjects in the Story Structure Questioning Strategy group would retain more information from testing session one to testing session two. The means and standard deviations of the two groups are presented in Table 6. While not statistically significant, the means were in the expected direction.

Insert Table 6 about here

The findings from a repeated measures analysis of variance indicated that the differences were not statistically significant. The F-ration (1,34) of treatment for free recall was .77678; for cued recall, it was 3.19865, neither of which was statistically significant at the .05 level. The F-ratio (1,34) for the interaction of treatment and testing for free recall was 1.65552; for cued recall it was .95606, again, neither was statistically significant.

Limitations

A possible limitation of this study lies with the instrument employed to score the free recall responses. It may be that though students remembered the story, the instrument was not sensitive enough to record this fact. During the interpretation of the results, an inferential leap was made in saying that recall reflects comprehension. What must be recognized is that probably the students comprehended more than they were able to verbalize; so recall is only an indication, rather than an exact score, of how well the students understand and remember what they read. Students are frequently required to respond to questions after they finish reading a story, however few teachers ask students to retell stories orally. The data were limited by the amount of retelling which was obtained.

The materials selected for use with sixth-graders whose reading levels spanned six years (3.0 - 9.0) constituted another limitation. Traditionally, the same material is used for all students; thus being too difficult for some to read, and too easy for others. Yet, by using identical material, the subjects are all exposed to the same content, concepts, sentence structure, etc. It was decided to rewrite stories for this study to the appropriate level so that all students would feel neither frustrated nor bored. It was felt that it was more important to have students concentrate on comprehension skills, rather than be distracted by difficult vocabulary. In an attempt to minimize the problems associated with using different materials, the number of propositions in the test passage and the content

remained the same for all three levels of the story. Although the adaptations appear to be valid, the limitations noted herein need to be recognized.

Discussion

If one believes that the purpose of education is to transmit to students the ability to become independent learners, then we must help students build cognitive structures which enable them to select, process, retain, and recall incoming information. In order to teach more effectively, we need to learn: (1) to structure the reading material which students use so that it is meaningful, and (2) to help learners develop cognitive structures which enhance the meaningfulness of material (Ausubel, 1968).

In discussion the teaching of reading with teachers, principals, and reading specialists, the problem most often voiced is that children can remember isolated details, yet are apparently unable to connect the details in a meaningful fashion. Recent research had begun to address this concern. Guszak's (1967) study examining teachers' questioning behavior seems to indicate that part of our present problem may be due to the overwhelming percentage of literal questions that are asked in classrooms. He suggested that literal questions produce thinking at the same level and thereby reinforce children's excellent recall of isolated details. In comparing good and poor readers, Guthrie (1973) concluded that even when poor readers use material which is at their level, they still lack the comprehension strategies that good readers appear to employ. Later, Guthrie (1977) suggested that we need to ask questions which will cause students to

integrate the details and the structure of a story. Therefore, the dominance of literal, factual questions and resulting thinking needs altering.

As the field of study about narrative discourse has expanded, several researchers have found parallel results when manipulating the structure of stories (Mandler & Johnson, 1977; Stein & Nezworske, 1978; Thorndyke, 1977). It appears that some parts of stories are more readily remembered than others and that the overall organization is quite important. Also, average and good readers seem to have a developed sense as to how stories are structured, whereas poor readers lack the use of this critical knowledge (Smiley et al., 1977). It is possible this information void negatively effects many readers' comprehension and recall of stories for which they have concepts, and which they can decode.

To move from basic research to the classroom, we need to find techniques which can be used to help readers develop awareness of story structure. If we can find one relatively successful means of teaching and developing an internal schema for reading and recalling narrative discourse, then, from it we can develop variations to meet the needs of differing groups. The results of this study support Guthrie's (1977) contention that it may be important to ask questions which focus on elements of story structure. This study indicates that recall of story information was enhanced by the use of the Story Structure Questioning Strategy.

Many recent reading researchers have chosen to use free recall as a research tool in order to avoid biasing and limiting the subjects' responses, as well as to eliminate the clues which are given when one asks questions about the reading material (Brown & Smiley, 1977; John & Berney, 1967; Pickert & Chase, 1978; Stein & Glenn, 1978). The belief is that what a child retells in an organized and appropriate fashion signals for the researcher the points of the story which were important to and meaningful for the child (as the inappropriate recollections signal failure either to comprehend or to recall). All this, of course, is taken with the caution that through free recall we do not know what the child may have remembered, yet chose not to verbalize. Perhaps, some of the data being collected via retelling are not reflective of the reading skills of some readers, especially those who are low-risk takers and those with poor oral language skills. It seems that if we believe that story retelling is generally a better way to test comprehension than the traditional questioning which segments bits of knowledge, then we need to give children practice and experience in retelling in non-testing situations.

The present investigation found no statistically significant differences in the treatment by reading level interaction. The results of this study suggest that the two treatments affected the high, average, and low readers equally. This is not in agreement with research that has suggested that the significant difference in cued recall performance is due to an increase in the scores of the lower-level readers and that high-level readers

have similar results no matter what the instructional strategy, because of their sophisticated development of personal organizational strategies (Levin, 1973). As expected, even though poor readers were reading material at their approximate independent level, they still performed less well than the good readers, indicating perhaps, specific comprehension deficits (Guthrie, 1977).

Research has shown that for many children listening to and reading stories enables them to internalize the basic structural elements of a story -- its story grammar (Mandler & Johnson, 1977; Stein & Glenn, 1978; Thorndyke, 1977). These children then seem to use this grammar to help them encode, organize, understand, and recall stories. This story grammar acts as a predicting tool to key children in to what should happen and acts as a guide for retelling the story. However, it appears that some children do not internalize the basic structure of stories spontaneously, and that these children are generally poor comprehenders. The Story Structure Questioning Strategy appears to be a promising instructional tool for developing awareness of story grammar and, thereby, has potential for enhancing comprehension and recall of narrative discourse.

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TABLE 1

Summary of Correlational Data

Variable	School Placement	Iowa	CAT	FREE	CUED
School Placement	1.0000				
Iowa	.8120	1.0000			
CAT	.5782	.6849	1.0000		
FREE	.1[illegible]88	.2758	.2438	1.0000	
CUED	.3629	.4751	.3526	.5658	1.0000

TABLE 2

Summary of Means and Standard Deviations

Treatment	Tested	School Placement		Iowa		CAT		FREE		CUED	
		M	SD	M	SD	M	SD	M	SD	M	SD
Story Structure	1	5.97	1.22	6.11	1.45	71.61	29.69	19.22	7.53	14.44	5.20
Alternate	1	5.83	1.14	5.97	1.41	58.78	33.19	18.72	5.63	12.33	3.97
Story Structure	2	5.94	1.44	6.21	1.49	70.89	30.75	9.72	5.76	11.01	4.12
Alternate	2	6.00	1.16	6.13	1.26	66.11	26.93	5.78	5.96	9.28	4.03

TABLE 3

Treatment ANOVA Summary

ANOVA Source	Covariates	Dependent Variable	D. F.	M. S.	F
Treatment	Iowa, School Placement, CAT	free recall	1,65	49.975	1.572
		cued recall		51.888	3.640
Treatment	School Placement	free recall	1,67	84.980	2.257
		cued recall		63.979	3.961*
Treatment	Iowa	free recall	1,67	73.277	2.232
		cued recall		56.047	4.038*

* F significant at $p < .05$

TABLE 4

Treatment by Test Session Interaction

ANOVA Summary

ANOVA Source	Covariates	Dependent Variable	D. F.	M. S.	F
Treatment X Test Session	Iowa, School Placement, CAT	free recall	1,65	56.203	1.768
		cued recall		.309	.022
Treatment X Test Session	School Placement	free recall	1,67	60.629	1.610
		cued recall		.015	.001
Treatment X Test Session	Iowa	free recall	1,67	56.328	1.715
		cued recall		.238	.020

TABLE 5

Correlation Matrix By Group

Treatment	Tested	Iowa/free	Iowa/cued
Story Structure	1	.6963	.8021
Story Structure	2	.1729	.3126
Alternate	1	.5850	.5076
Alternate	2	.1729	.3126

TABLE 6

Cell Means and Standard Deviations

Treatment	Dependent Variable	Session 1 M	Session 1 SD	Session 2 M	Session 2 SD
Story Structure	Free	19.222	7.527	15.333	5.499
Alternate	Free	18.722	5.634	12.722	4.212
Story Structure	Cued	14.444	5.204	14.888	5.204
Alternate	Cued	12.333	3.970	11.888	3.628

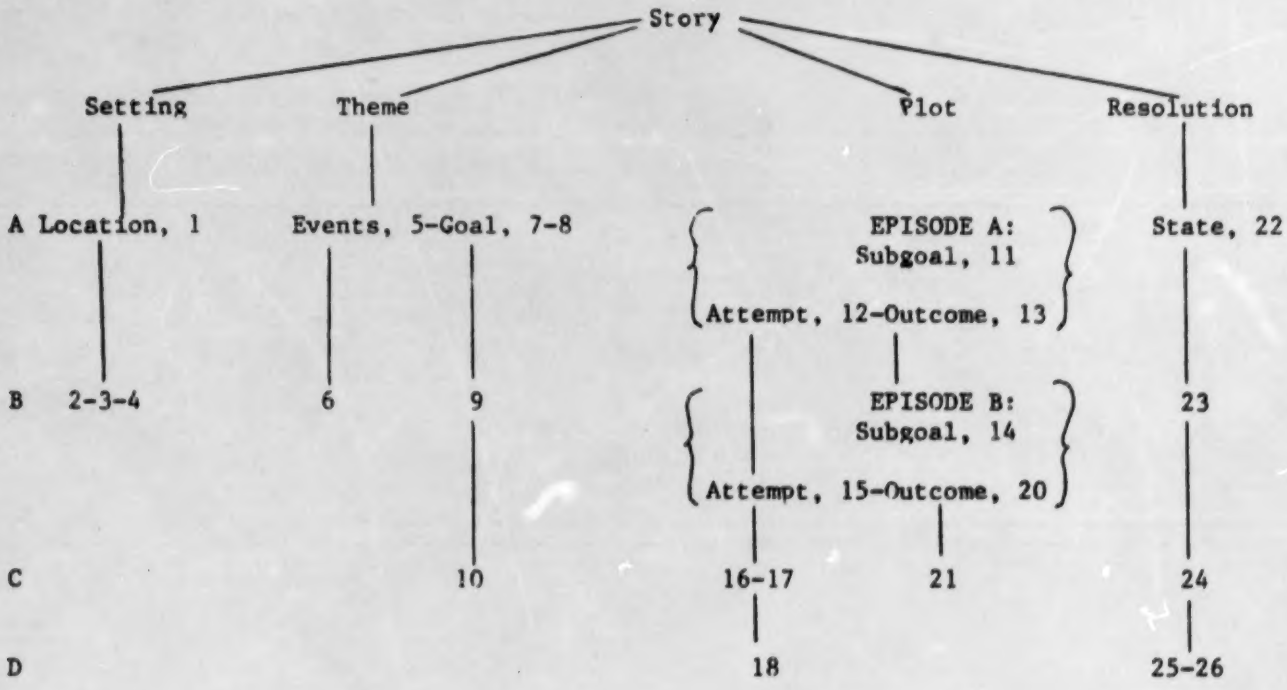
Figure 1

Representation of a Story

Shurcliff, 1978

Nine Elements of a story	Element	The Farmer Story
Protagonist	I	There once was an old farmer who owned a very stubborn donkey.
Event which sets up a goal or poses a problem	II	One day it started to rain (assumption: donkeys must not get wet).
Protagonist has an interval response or reation	III	"Oh, oh, it's raining," thought the farmer.
Protagonist sets a goal	IV	"I must put the donkey into its shed."
Protagonist decides how to reach the goal	V	"I will try pulling it in with a halter."
Protagonist solves pre-existing conditions if necessary	VI	The farmer put the halter on the donkey,
Protagonist attempts to reach goal	VII	and pulled as hard as he could,
Result of attempt	VIII	and at last pulled the donkey into the shed.
General conlusion of the story	IX	And so the donkey ended up safely in the shed, and the farmer was happy.

Figure 2


Story
Setting
Theme
Plot
Resolution
A Location, 1
Events, 5-Goal, 7-8
EPISODE A:
Subgoal, 11
Attempt, 12-Outcome, 13
State, 22
B 2-3-4
6
9
EPISODE B:
Subgoal, 14
Attempt, 15-Outcome, 20
23
C
10
16-17
21
24
D
18
25-26

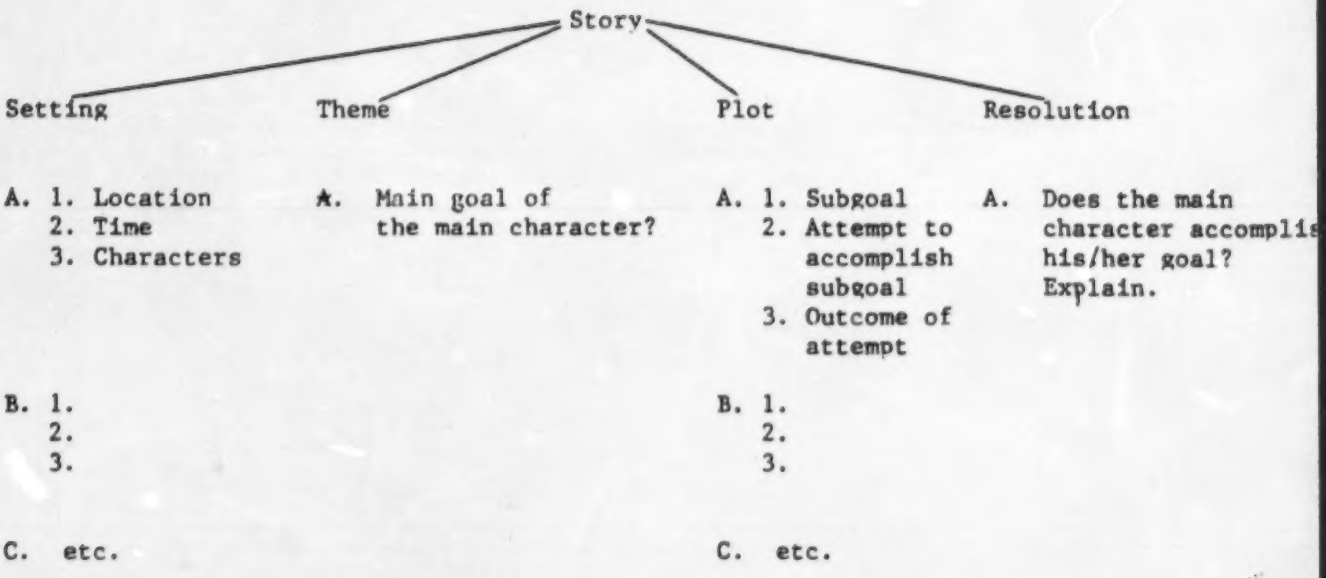

Story
Setting
Theme
Plot
Resolution
A. 1. Location
2. Time
3. Characters
B. 1.
2.
3.
C. etc.
A. Main goal of the main character?
A. 1. Subgoal
2. Attempt to accomplish subgoal
3. Outcome of attempt
B. 1.
2.
3.
C. etc.
A. Does the main character accomplis his/her goal? Explain.

Figure 4

STORY TITLE

SETTING	THEME	PLOT	RESOLUTION
1. Who are the characters? 2. Where did the story take place? 3. When did the story take place?	4. What was the main goal of the main character?	5. What happened in the story? (List the events in the correct order.)	6. Did the main character reach his/her goal? (Explain you answer in one sentence.)

Figure 5

STORY TITLE

LITERAL	INTERPRETIVE	PROBLEM-SOLVING
1.	4.	6.
2.	5.	
3.		